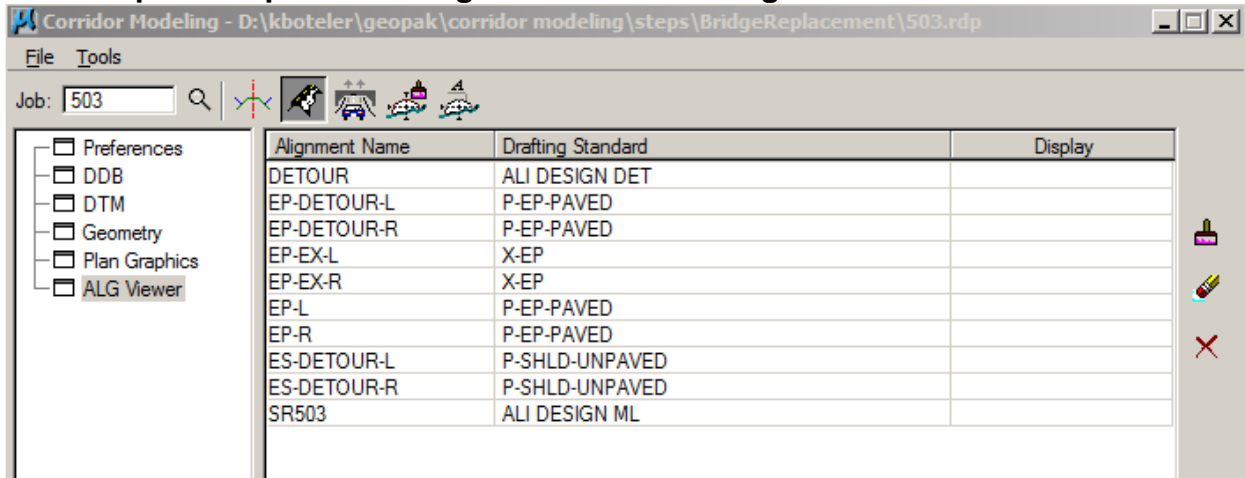


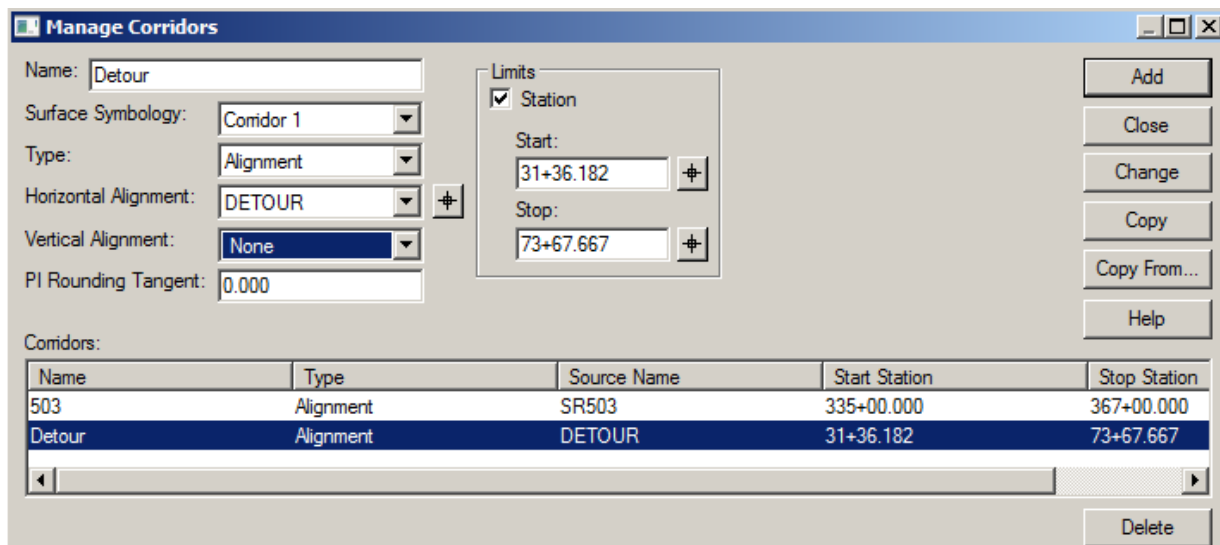
## Corridor Modeling – Detours (10-2010)

The following shows the primary dialogs for a Bridge Replacement job with a Temporary Detour & the process involved to properly calculate earthwork.

### 1) Plan Graphics imported through Corridor Modeling

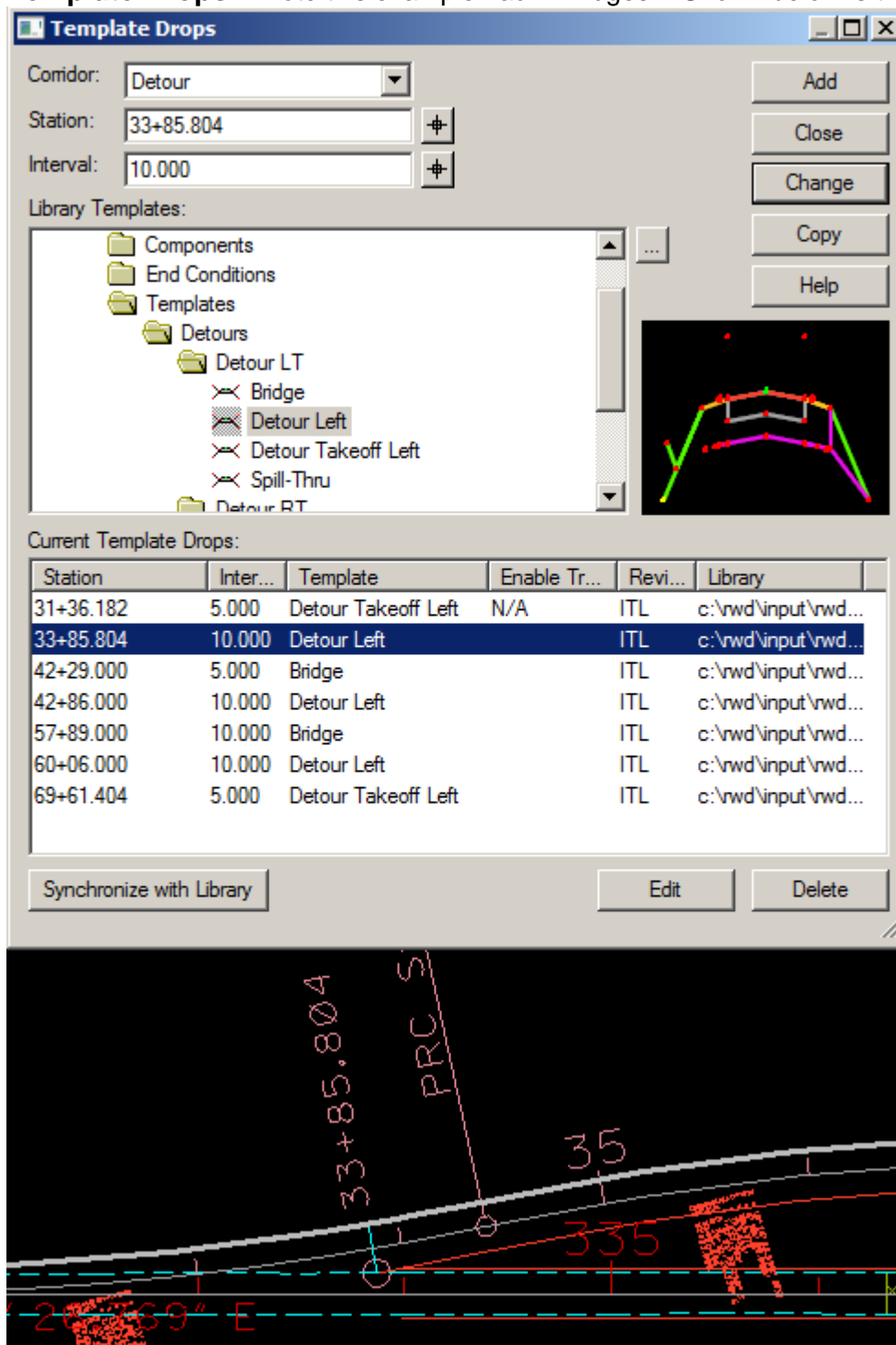


### 2) Create Detour Corridor



Note: The Detour alignment is brought in with a vertical alignment of none since we're using the existing pavement slope at the beginning of the project.

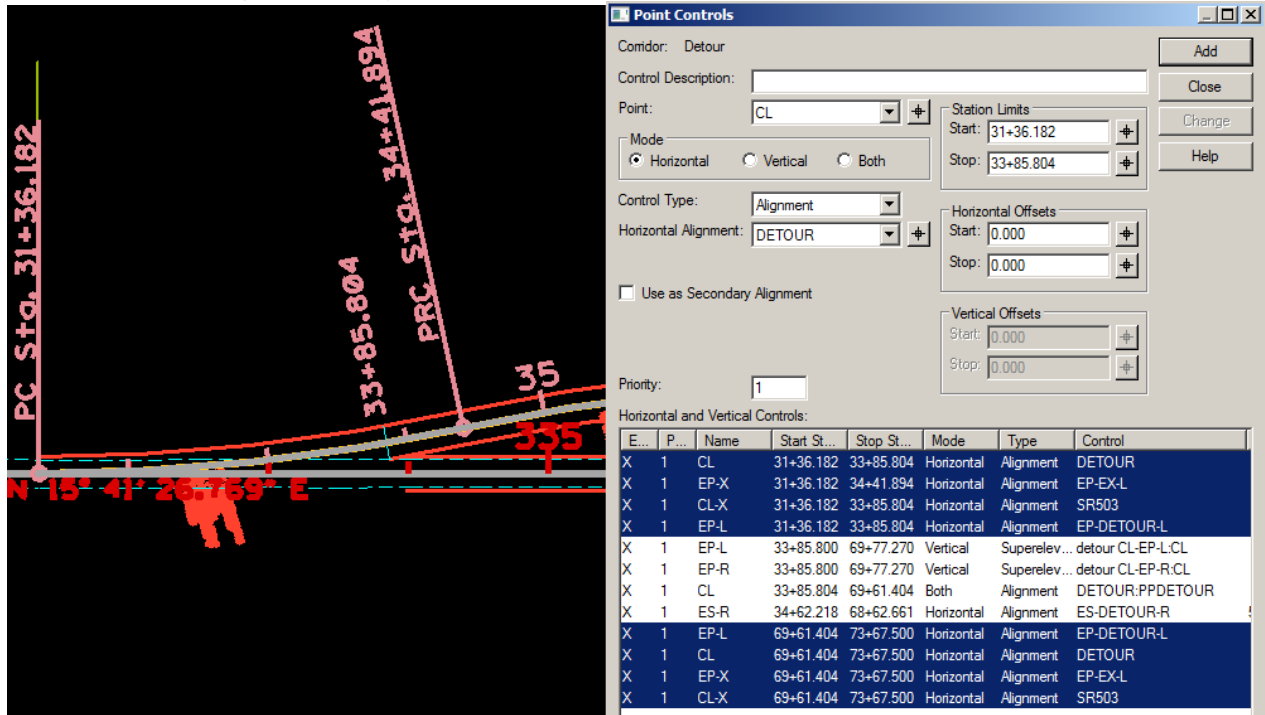
3) **Template Drops** – Note this example had 2 Bridges. Shown below is the Detour Corridor.



**Note:** 33+85.804 is the location where the Detour EP & Existing EP intersect.

4) **Import Detour Superelevation**

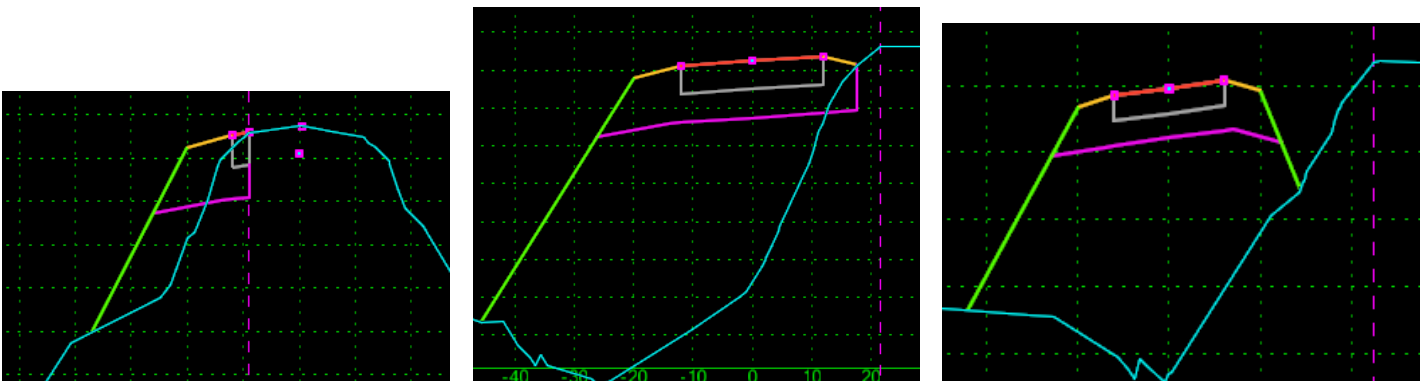
## 5) Point Controls (For Detour)



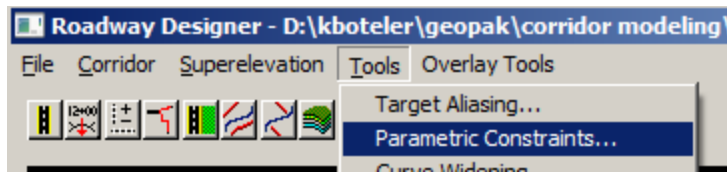
Notes:

- The Point Controls needed for the detour takeoff & tie in are highlighted above.
- CL that is not highlighted above was added as a Horizontal & Vertical Point Control as a way to get the Detour profile in the full width detour area.
- ES-R is assigned a Horizontal point control so that there will be no conflict with the ML Left Shoulder.

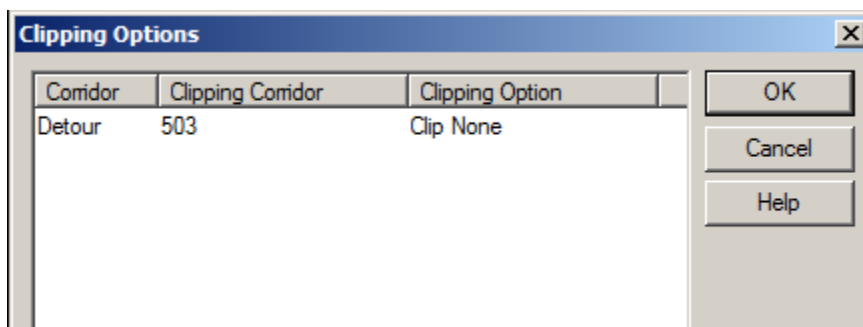
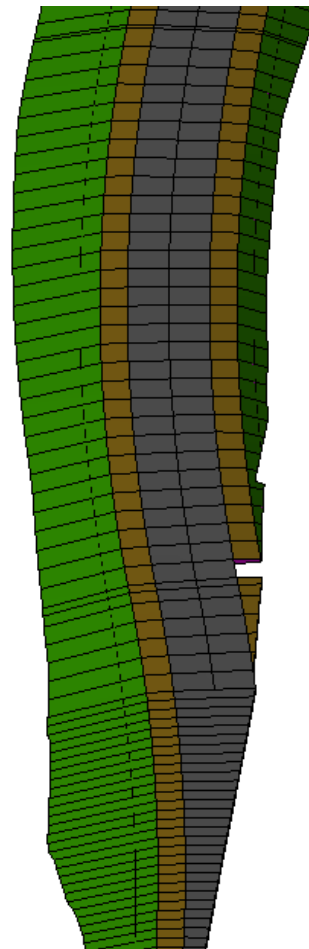
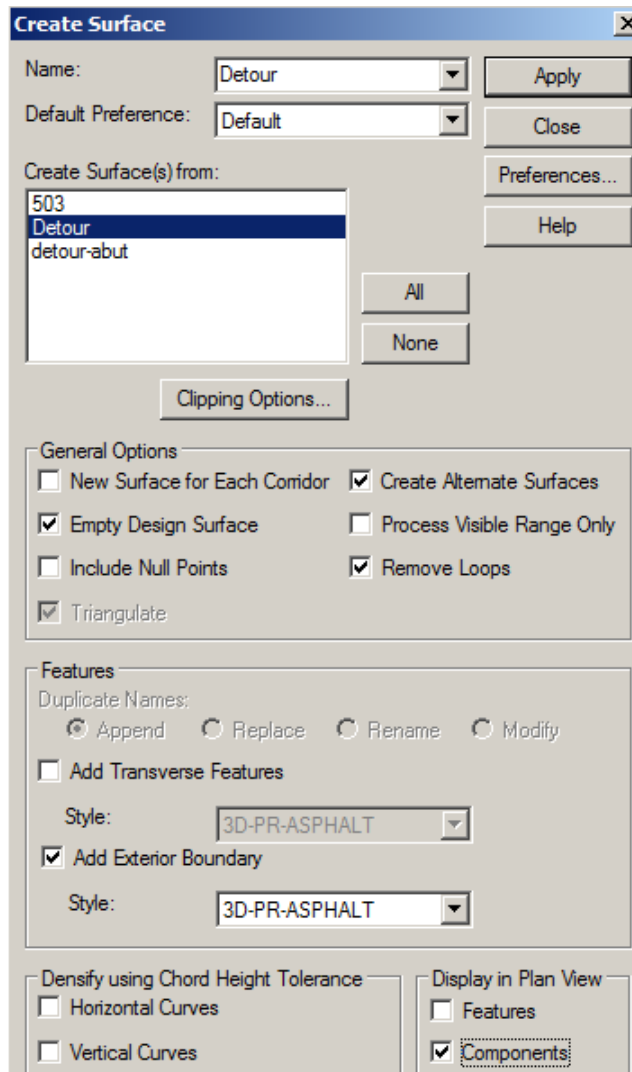
Templates are processed as shown below.



## 6) Parametric Constraints (If needed)



## 7) Create Surface of Detour

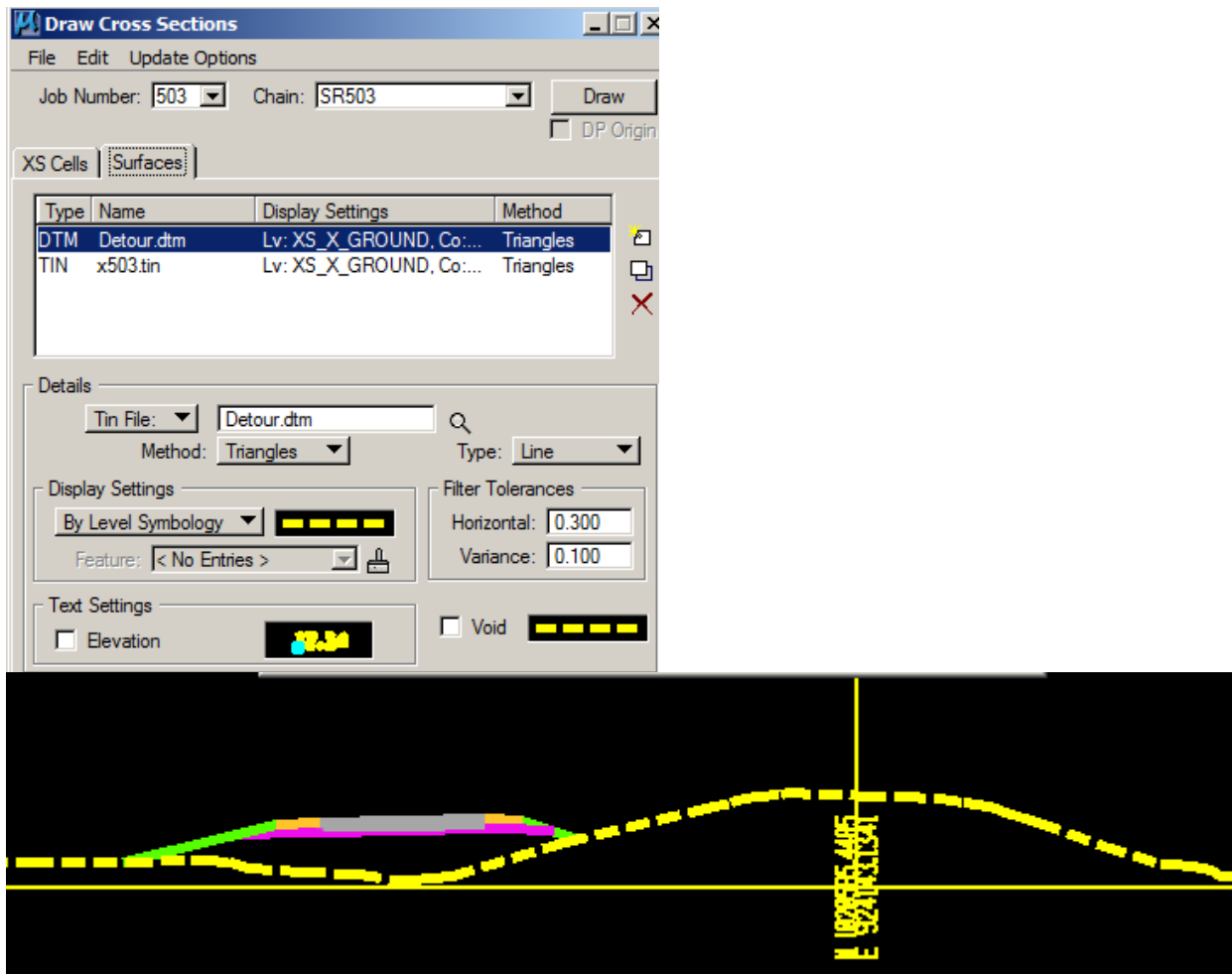


Notes:

- a) Make sure the Clipping option is set to none when creating the detour surface. This only has to be checked if you have to re-create the Detour surface after the ML Corridor has already been created.
- b) Alternate Surface “Top Dirt – Detour.dtm” also created.

8) **Pattern Lines** – Create a Pattern DGN file (**PATml.dgn**) & create Pattern Lines along your **ML chain** at critical design locations and at the increment needed.

9) **Detour XS's** – Create a XS DGN (**XS-Detour.dgn**) and Cut Existing XS's of the Detour Surface along ML Alignment.



10) Use GeoPak's Multi-Line tool to merge the detour with the existing ground.

Multi-Line Report

File

Job: 503

Chain: SR503

Begin Station: 331+50.000 R 1

End Station: 373+50.000 R 1

XS Elements

Lv	Nur	Lv Name	Color	Weigh	Style	Lb	T/E	Lv	Co	Wt	LC	P/
		XS_P_FINISHED_GRADE, XS_P_SHOULDER, XS_P_GROUND	3,6	ByLevel	By...	By...	B	B	XS_M_MULTI	-1	-1	21...
		XS_X_GROUND		ByLevel	By...	By...	B	B	XS_M_MULTI	-1	-1	21...

XS Elements: Display

Output Format: GEOPAK

5-Point

Pause on Each XS

Add To Design File

ASCII File: mlt.gen

Create

Current Station: 331+50.000 R 1

Apply

Note: Levels in highlighted row are XS\_P\_FINISHED\_GRADE, XS\_P\_SHOULDER, XS\_P\_GROUND, & XS\_P\_SUBGRADE

- 11) **Copy XSml-Detour.dgn to XS-ml.dgn.** Enter this file & delete all elements except the XS\_M\_MULTI & then change the XS\_M\_MULTI elements to level XS\_X\_GROUND. This file will be used to place your ML Surface (with Temporary Slope) in.

## 12) Create ML Corridor

Manage Corridors

Name: 503

Surface Symbology: Corridor 2

Type: Alignment

Horizontal Alignment: SR503

Vertical Alignment: CLPRO

PI Rounding Tangent: 0.000

Limits

Station

Start: 335+00.000

Stop: 367+00.000

Add

Close

Change

Copy

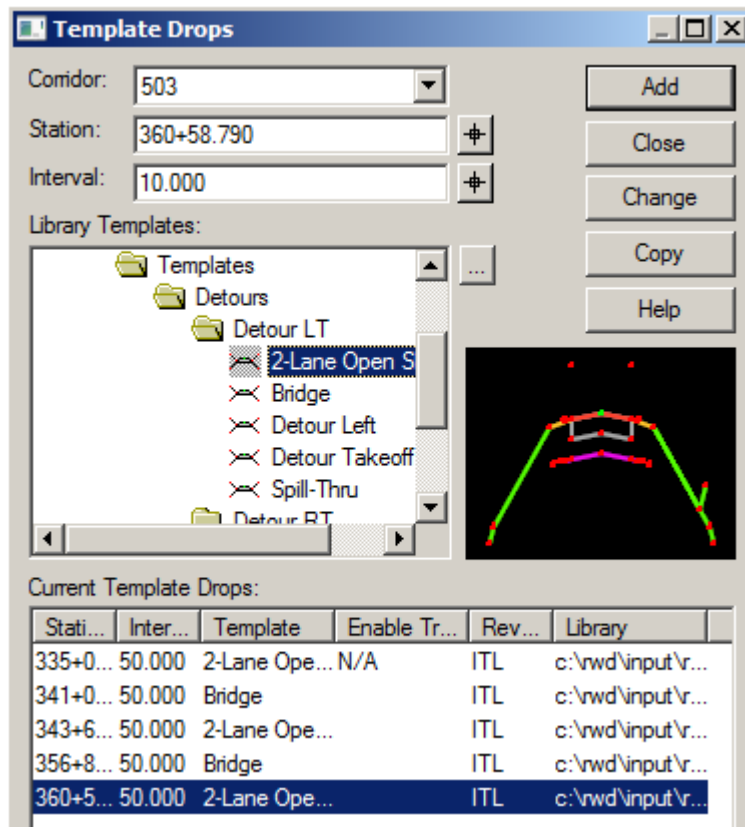
Copy From...

Help

Corridors:

Name	Type	Source Name	Start Station	Stop Station
503	Alignment	SR503	335+00.000	367+00.000
Detour	Alignment	DETOUR	31+36.182	73+67.667

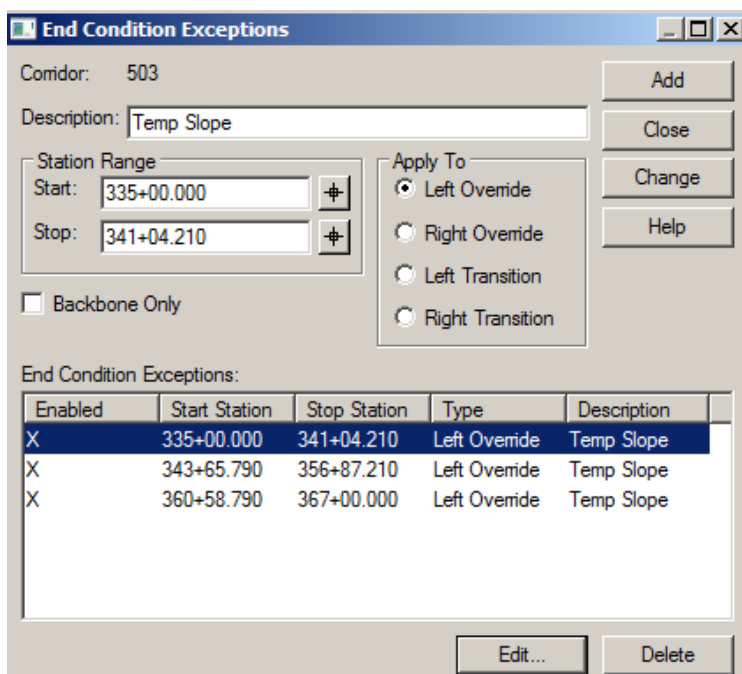
## 13) Template Drops – ML



#### 14) Import Superelevation for ML

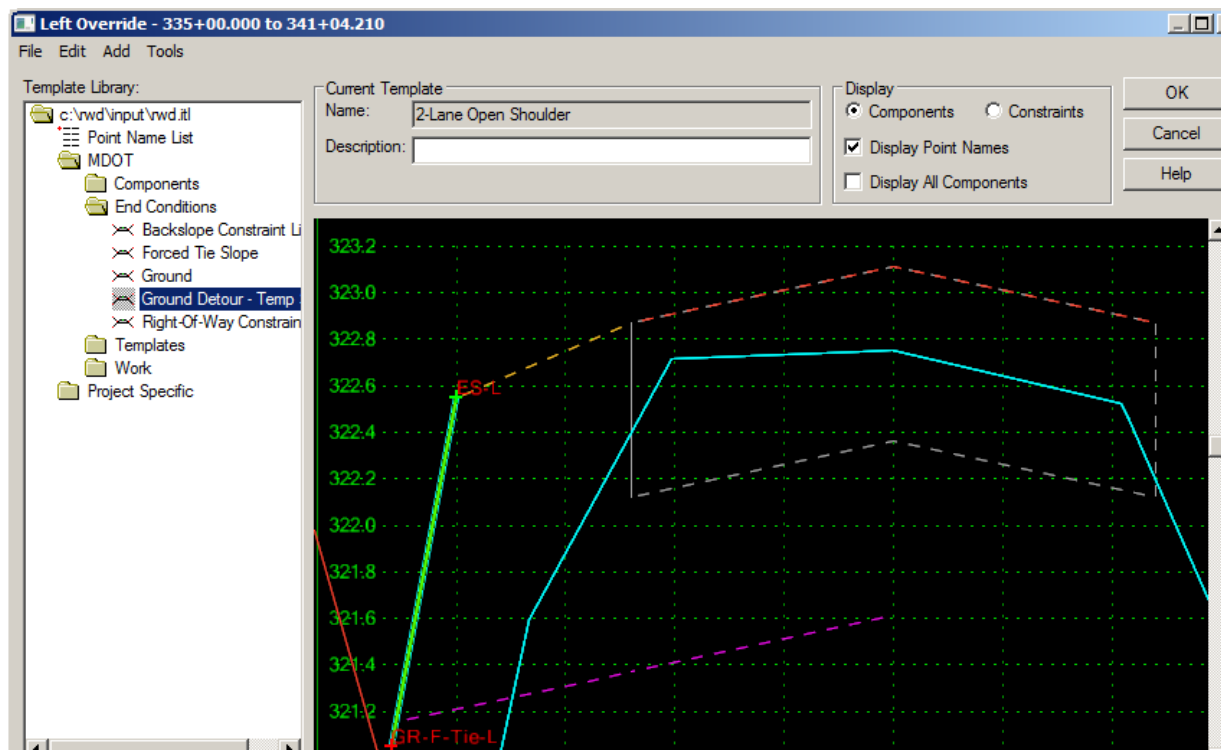
#### 15) Point Controls (If needed).

#### 16) End Condition Exception – To Place Temporary Slope. When enabled, this overrides the normal End Condition of the template. Three were added to skip Bridge Stations.

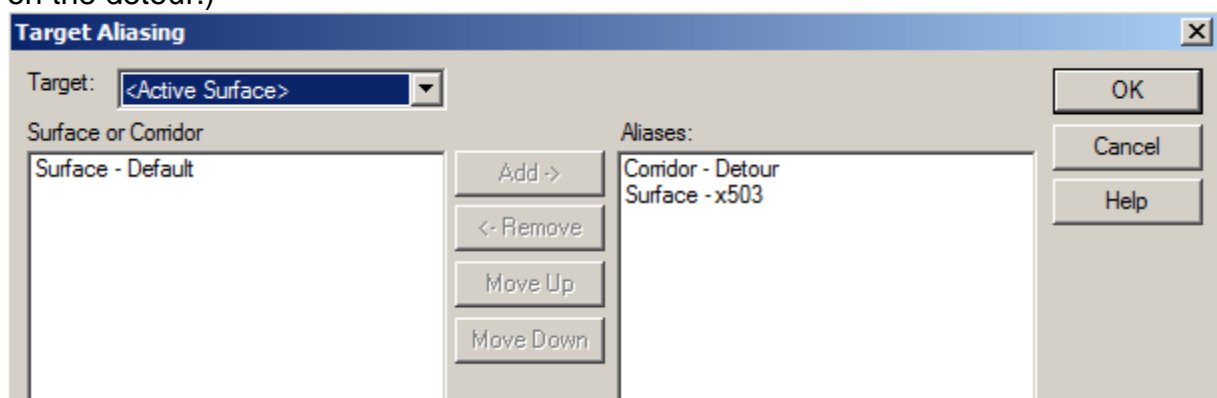


#### 17) Tag Edit, delete the left ground components, and Drag & Drop the following Temporary Slope End Condition. It's set by default to 2:1 but you can change by filling in the Parametric

Constraint of “Fill Temp Slope”.



**18) Tag Tools – Target Aliasing** which allows you to target the Detour Corridor (while traffic is on the detour.)

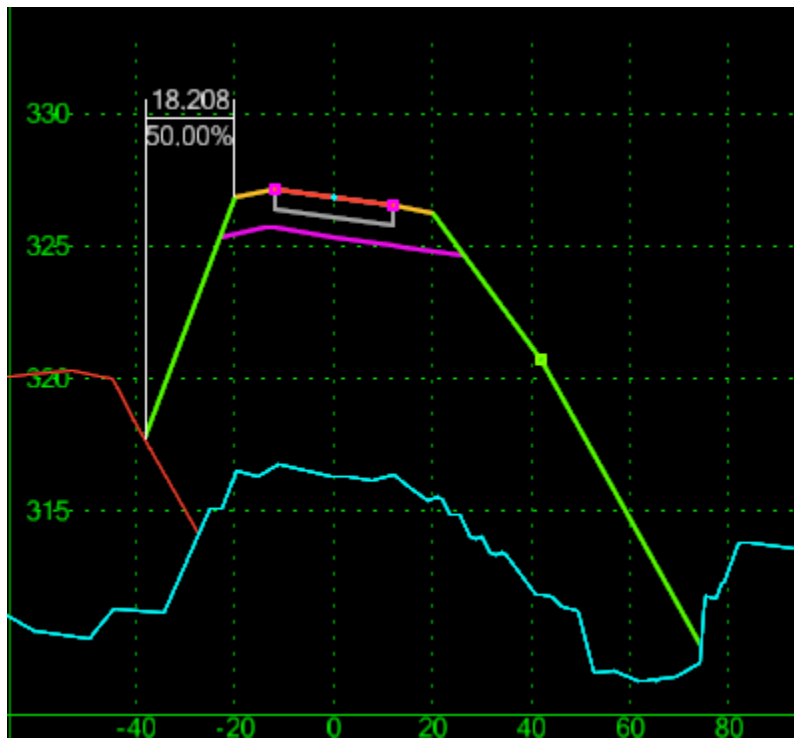


**19) Parametric Constraints**

Fill in any needed.

**20) Process/Review Sections.** Since the Detour Corridor was added as a Target Alias it is now being displayed and it is being intersected by the temporary slope.





## 21) Create your ML Surface.

Create Surface

Name:

503-Temp-Slope

Apply

Default Preference:

Default

Close

Create Surface(s) from:

503

Detour

Preferences...

Help

All

None

Clipping Options...

General Options

☐ New Surface for Each Corridor

☒ Create Alternate Surfaces

☒ Empty Design Surface

☐ Process Visible Range Only

☐ Include Null Points

☒ Remove Loops

☒ Triangulate

Features

Duplicate Names:

☒ Append

☐ Replace

☐ Rename

☐ Modify

☐ Add Transverse Features

Style:

3D-PR-ASPHALT

☒ Add Exterior Boundary

Style:

3D-PR-ASPHALT

Densify using Chord Height Tolerance

☐ Horizontal Curves

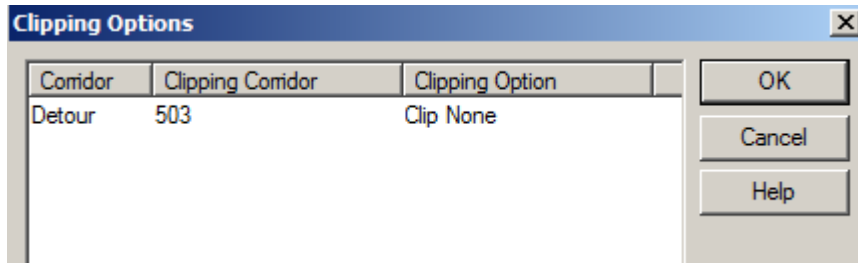
☐ Vertical Curves

Display in Plan View

☐ Features

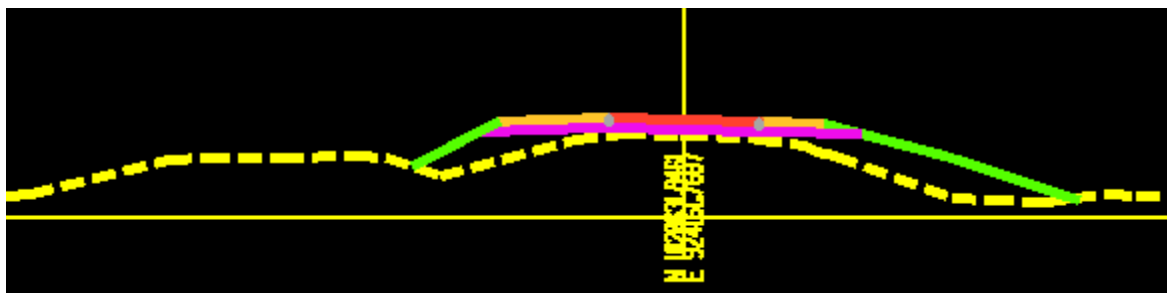
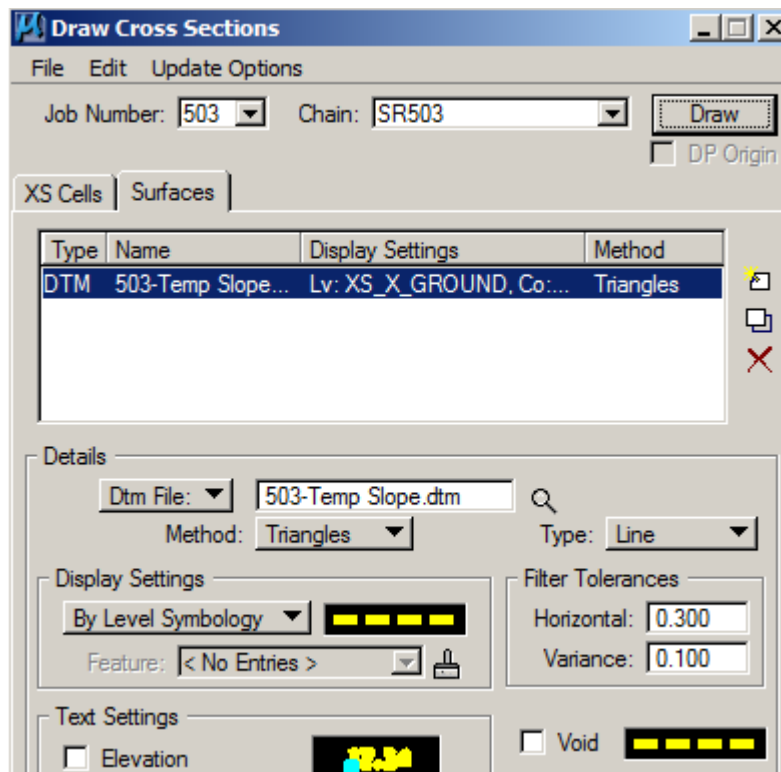
☒ Components

Make sure clipping options if off.



## 22) ML X-Sections (With Temp. Slope)

Enter XS-ML.DGN and cut X-sections.



23) Run EW to calculate your ML EW with a Temp. Slope.

24) Copy XS-ML.dgn to **XS-detour-removal.dgn**.

25) Use GeoPak's Multi-Line tool to merge the detour with the existing ground.


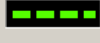
**Multi-Line Report**

File

Job: 503      Begin Station: 331+50.000 R 1      331+50.000 R 1  
Chain: SR503      End Station: 373+50.000 R 1      373+50.000 R 1

XS Elements

Lv	Nur	Lv Name	Color	Weigh	Style	Lb	T/£	Lv	Co	Wt	LC	P/
		XS_P_FINISHED_GRADE, XS_P_SHOULDER, XS_P_GROUND	3.6	ByLevel	By...	By...	B	B	XS_M_MULTI	-1	-1	21...
		XS_X_GROUND		ByLevel	By...	By...	B	B	XS_M_MULTI	-1	-1	21...

XS Elements:  Display  Label: B Bottom Primary

Output Format: GEOPAK ☐ 5-Point ☐ Pause on Each XS Add To Design File

ASCII File: mlt.gen Create Current Station: 331+50.000 R 1

Apply

Note: Levels in highlighted row are XS\_P\_FINISHED\_GRADE, XS\_P\_SHOULDER, XS\_P\_GROUND.

- 26) Delete all elements except the XS\_M\_MULTI & then change the XS\_M\_MULTI elements to level XS\_X\_GROUND. This file will be used to place your Detour Removal in.

## 27) Create Detour Removal Corridor

**Manage Corridors**

Name: detour-removal

Surface Symbology: Coridor 3

Type: Alignment

Horizontal Alignment: SR503

Vertical Alignment: CLPRO

PI Rounding Tangent: 0.000

Limits

☐ Station

Start: 335+00.000

Stop: 367+00.000

Add  
Close  
Change  
Copy  
Copy From...  
Help

Corridors:

Name	Type	Source Name	Start Station	Stop Station
503	Alignment	SR503	335+00.000	367+00.000
Detour	Alignment	DETOUR	31+36.182	73+67.667
detour-removal	Alignment	SR503	335+00.000	367+00.000

## 28) Template Drops for Detour Removal

**Template Drops**

Corridor:

Station:

Interval:

Library Templates:

- Detours
  - Detour LT
    - 2-Lane Open S
    - Bridge
    - Detour Left
    - Detour Takeoff
    - Ground Detour**
    - Spill-Thru
  - Detour RT

Current Template Drops:

Stati...	Inter...	Template	Enable Tr...	Rev...	Library
335+0...	50.000	Ground Det...	N/A	ITL	c:\vwd\input\r...
341+0...	50.000	Bridge		ITL	c:\vwd\input\r...
343+6...	50.000	Ground Det...		ITL	c:\vwd\input\r...
356+8...	50.000	Bridge		ITL	c:\vwd\input\r...
360+5...	50.000	Ground Det...		ITL	c:\vwd\input\r...

## 29) Point Controls (Required)

**Point Controls**

Corridor:

Control Description:

Point:

Mode: ☐ Horizontal ☐ Vertical ☒ Both

Control Type:

Horizontal Alignment:

Vertical Alignment:

☐ Use as Secondary Alignment

Priority:

Station Limits: Start:  Stop:

Horizontal Offsets: Start:  Stop:

Vertical Offsets: Start:  Stop:

Horizontal and Vertical Controls:

En...	Pri...	Name	Start Station	Stop Station	Mode	Type	Control	Descr
X	1	ES-L	324+00.390	373+62.020	Both	Coridor...503:ES-L		
X	1	GR-F-TIE-L-DETOUR	324+00.390	373+62.020	Horizontal	Coridor...Detour:GR-F-TIE-L		
X	1	SG-Hinge	324+00.390	373+62.022	Both	Coridor...503:SG-Hinge-L		
X	1	SG-Tie-to-ML-SGTie	324+00.390	373+62.022	Both	Coridor...503:SG-Tie-L		
X	1	SG-Tie-to-ML-SGTie1	324+00.390	373+62.022	Both	Coridor...503:SG-Tie1-L		

**30) Modify Parametric Constraints if needed.**

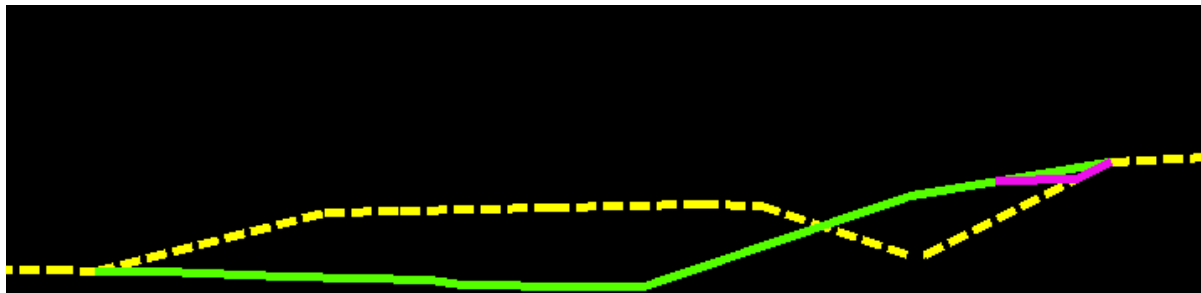
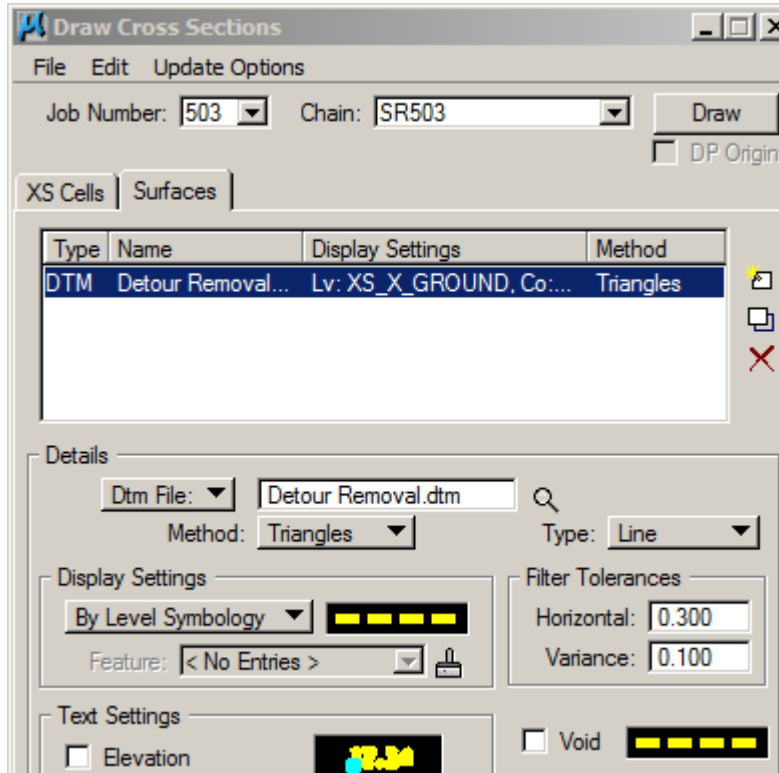
**31) Create Surface**

**Notes:**

- a) Top Dirt – Detour Removal DTM also created.
- b) Make sure clipping options are set to none.

### 32) Cut Detour Removal Sections

Enter your XS-ML-Detour-Removal DGN file:



Example of Detour removal to natural ground.

### 33) Run EW for Detour Removal.

## XS Sheet Layout

### 34) Enter XS-ML.DGN & reference XS-Detour & XS-Detour Removal. Lay out & turn on Nested References.